Space Weather Forecast

Issued on Monday, 25 July 2022 at 13:08 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight Chance of Moderate class flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low during the last 24 hours, with no significant flares and a gradual decrease of the background level. There are seven numbered sunspot regions on the visible disc, most of which are relatively simple and fairly inactive. There has been numerous faint CMEs (Coronal Mass Ejections) seen in satellite imagery in the past 24 hours but none of these are considered to be Earth-directed. A filament eruption occurred at 24/1837UTC in the southeast quadrant, although there is currently no evidence of a CME in available imagery. No Earth-directed CME's have been observed.

Solar Wind / Geomagnetic Activity: The solar wind was characteristic of the tail end of a coronal hole high speed stream. The solar wind speed decreased from 530 to 430km/s. The number of particles the solar wind is composed of was average or below average. The magnetic field strength was steady and weak, with no significant fluctuations in the important north-south component (Bz). The net result of the above solar wind measures was for mostly Quiet geomagnetic conditions, with a provisional Unsettled interval (Kp3) observed in the 0000-0300UTC period.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain low, with a daily slight chance of moderate-class flares. Barring development, three further regions should leave the Earth-facing side of the Sun in the period, however the eastern solar hemisphere's far side is congested with the expected returning sunspot locations, such that activity ought to be maintained, pending proper analysis of any arrivals.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently forecast. Solar winds are expected to slowly decline towards slow-ambient levels, with no significant enhancements expected during this period. Geomagnetic activity is therefore expected to remain predominantly Quiet with isolated Unsettled intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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